

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 82

[EPA-HQ-OAR-2005-0087; FRL-XXX-X]

RIN-2060-AM24

Protection of Stratospheric Ozone: Listing of Substitutes for Ozone-Depleting Substances--

Fire Suppression and Explosion Protection

AGENCY: Environmental Protection Agency

ACTION: Direct Final Rule

SUMMARY: This action lists four substitutes for ozone-depleting substances (ODSs) in the fire suppression and explosion protection sector as acceptable subject to use conditions under the U.S. Environmental Protection Agency's (EPA) Significant New Alternatives Policy (SNAP) program. SNAP implements section 612 of the Clean Air Act, as amended in 1990, which requires EPA to evaluate substitutes for ODSs and find them acceptable where they do not pose a greater overall risk to human health and the environment than other acceptable substitutes.

DATES: This rule is effective on **[insert date 60 days from date of publication in the Federal Register]** without further notice, unless EPA receives adverse comment or receives a request for a public hearing by **[insert date 30 days from date of publication in the Federal Register]**. If we receive adverse comment or a request for a public hearing, we will publish a timely withdrawal in the **Federal Register** informing the public that all or part of this rule will not take effect.

ADDRESSES: EPA has established a public docket for this action under Docket ID No. EPA-HQ-OAR-2005-0087. All documents in the docket are listed on the www.regulations.gov web site. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through www.regulations.gov or in hard copy at the Air and Radiation Docket, EPA/DC, EPA West, Room B102, 1301 Constitution Ave., NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Air and Radiation Docket is (202) 566-1742.

FOR FURTHER INFORMATION CONTACT: Bella Maranion, Stratospheric Protection Division, Office of Atmospheric Programs (6205J), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW, Washington, DC 20460; telephone number: (202) 343-9749; fax number: (202) 343-2363; e-mail address: maranion.bella@epa.gov. The published versions of notices and rulemakings under the SNAP program are available on EPA's Stratospheric Ozone Web site at <http://www.epa.gov/ozone/snap/regs>.

SUPPLEMENTARY INFORMATION: In this direct final rule, EPA adds four fire suppression agents to the list of acceptable substitutes subject to use conditions. The regulations implementing the SNAP program are codified at 40 CFR Part 82, Subpart G. The appendices to Subpart G list for specific end uses substitutes for ODSs as unacceptable or acceptable with

certain restrictions imposed on their use. The action in this direct final rule will add the four halon substitutes acceptable subject to use conditions to the appendices to Subpart G.

EPA is publishing today's revisions to the SNAP lists without prior proposal because the Agency views them as non-controversial and anticipates no adverse comment. We are adding four new agents to the list of acceptable substitutes subject to use conditions. This action does not place any significant burden on the regulated community but lists as acceptable, subject to use conditions, new halon substitutes while continuing to protect human health and the environment.

In the "Proposed Rules" section of today's **Federal Register** publication, EPA is publishing a companion proposed rule that proposes the same actions as in this direct final rule. The direct final rule will be effective on **[insert date 60 days from the date of publication in the Federal Register]** without further notice unless we receive adverse comment (or a request for a public hearing) by **[insert date 30 days from date of publication in the Federal Register]**. If EPA receives adverse comment, we will publish a timely withdrawal in the **Federal Register** informing the public that all or part of this rule will not take effect. EPA will address all public comments in a subsequent final rule based on the proposed rule. We will not institute a second public comment period on this action. Any parties interested in commenting must do so at this time.

You may claim that information in your comments is confidential business information, as allowed by 40 CFR Part 2. If you submit comments and include information that you claim as confidential business information (CBI), we request that you submit them directly to Bella Maranion at the address under "FOR FURTHER INFORMATION CONTACT" in two versions: one clearly marked "Public" to be filed in the Public Docket, and the other marked

“Confidential” to be reviewed by authorized government personnel only. This information will remain confidential unless EPA determines, in accordance with 40 CFR Part 2, Subpart B, that the information is not subject to protection as CBI.

Table of Contents

- I. Section 612 Program
 - A. Statutory Requirements
 - B. Regulatory History
- II. Listing Decisions: Fire Suppression and Explosion Protection – Total Flooding
 - A. Gelled Halocarbon/Dry Chemical Suspension with sodium bicarbonate additive (Envirogel with Sodium Bicarbonate additive) – Acceptable Subject to Use Conditions
 - B. Powdered Aerosol D (Aero-K[®], Stat-X[®]) – Acceptable Subject to Use Conditions
 - C. Powdered Aerosol E (FirePro[®]) – Acceptable Subject to Use Conditions
 - D. Phosphorous Tribromide (PBr₃) – Acceptable Subject to Use Conditions
- III. Statutory and Executive Order Reviews
 - A. Executive Order 12866
 - B. Paperwork Reduction Act
 - C. Regulatory Flexibility Act (RFA)
 - D. Unfunded Mandates Reform Act
 - E. Executive Order 13132 (Federalism)

- F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments
- G. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks
- H. Executive Order 13211 (Energy Effects)
- I. National Technology Transfer and Advancement Act
- J. Congressional Review Act

I. Section 612 Program

A. Statutory Requirements

Section 612 of the Clean Air Act (CAA) authorizes EPA to develop a program for evaluating alternatives to ozone-depleting substances. EPA refers to this program as the Significant New Alternatives Policy (SNAP) program. The major provisions of Section 612 are:

- *Rulemaking* - Section 612(c) requires EPA to promulgate rules making it unlawful to replace any class I (chlorofluorocarbon, halon, carbon tetrachloride, methyl chloroform, and hydrobromofluorocarbon) or class II (hydrochlorofluorocarbon) substance with any substitute that the Administrator determines may present adverse effects to human health or the environment where the Administrator has identified an alternative that (1) reduces the overall risk to human health and the environment, and (2) is currently or potentially available.
- *Listing of Unacceptable/Acceptable Substitutes* - Section 612(c) also requires EPA to publish a list of the substitutes unacceptable for specific uses. EPA must publish a corresponding list of acceptable alternatives for specific uses.

- *Petition Process* - Section 612(d) grants the right to any person to petition EPA to add a substitute to or delete a substitute from the lists published in accordance with Section 612(c). The Agency has 90 days to grant or deny a petition. Where the Agency grants the petition, EPA must publish the revised lists within an additional six months.
- *90-day Notification* - Section 612(e) directs EPA to require any person who produces a chemical substitute for a class I substance to notify the Agency not less than 90 days before new or existing chemicals are introduced into interstate commerce for significant new uses as substitutes for a class I substance. The producer must also provide the Agency with the producer's health and safety studies on such substitutes.
- *Outreach* - Section 612(b)(1) states that the Administrator shall seek to maximize the use of federal research facilities and resources to assist users of class I and II substances in identifying and developing alternatives to the use of such substances in key commercial applications.
- *Clearinghouse* - Section 612(b)(4) requires the Agency to set up a public clearinghouse of alternative chemicals, product substitutes, and alternative manufacturing processes that are available for products and manufacturing processes which use class I and II substances.

B. Regulatory History

On March 18, 1994, EPA issued a rule (69 FR 13044) which described the process for administering the SNAP program and published EPA's first acceptability lists for substitutes in the major industrial use sectors. These sectors include: refrigeration and air-conditioning; foam blowing; solvents cleaning; fire suppression and explosion protection; sterilants; aerosols; adhesives, coatings and inks; and tobacco expansion. These sectors comprise the principal industrial sectors that historically consumed large volumes of ozone-depleting compounds.

The Agency defines a "substitute" as any chemical, product substitute, or alternative manufacturing process, whether existing or new, that could replace a class I or class II substance. Anyone who produces a substitute must provide the Agency with health and safety studies on the substitute at least 90 days before introducing it into interstate commerce for significant new use as an alternative. This requirement applies to chemical manufacturers, but may include importers, formulators, or end-users when they are responsible for introducing a substitute into commerce.

To develop the lists of unacceptable and acceptable substitutes, EPA conducts screens of health and environmental risk posed by various substitutes for ozone-depleting compounds in each use sector. The outcome of these risk screens can be found in the public docket, as described above in the *Addresses* portion of this document.

Under Section 612, the Agency has considerable discretion in the risk management decisions it can make in SNAP. The Agency has identified four possible decision categories: acceptable; acceptable subject to use conditions; acceptable subject to narrowed use limits; and unacceptable. Fully acceptable substitutes, i.e., those with no restrictions, can be used for all applications within the relevant sector end-use. Conversely, it is illegal to replace an ODS with a substitute listed by SNAP as unacceptable.

After reviewing a substitute, the Agency may make a determination that a substitute is acceptable only if certain conditions of use are met to minimize risk to human health and the environment. Such substitutes are described as “acceptable subject to use conditions”. Use of such substitutes without meeting associated use conditions renders these substitutes unacceptable and subjects the user to enforcement for violation of Section 612 of the Clean Air Act.

Even though the Agency can restrict the use of a substitute based on the potential for adverse effects, it may be necessary to permit a narrowed range of use within a sector end-use because of lack of alternatives for specialized applications. Users intending to adopt a substitute acceptable with narrowed use limits must ascertain that other acceptable alternatives are not technically feasible. Companies must document the results of their evaluation, and retain the results on file for purposes of demonstrating compliance. This documentation shall include descriptions of substitutes examined and rejected, processes or products in which the substitute is needed, reason for rejection of other alternatives, e.g., performance, technical or safety standards, and the anticipated date other substitutes will be available and projected time for switching to other available substitutes. Use of such substitutes in applications and end-uses which are not specified as acceptable in the narrowed use limit renders these substitutes unacceptable.

EPA does not believe that notice and comment rulemaking procedures are required to list alternatives as acceptable with no restrictions. Such listings do not impose any sanction, nor do they remove any prior license to use a substitute. Consequently, EPA adds substitutes to the list of acceptable alternatives without first requesting comment on new listings. Updates to the acceptable lists are published as separate Notices of Acceptability in the **Federal Register**.

For more information on the Agency's process for administering the SNAP program or criteria for evaluation of substitutes, refer to the SNAP rule published in the **Federal Register** on

March 18, 1994 (59 FR 13044), and see also the Code of Federal Regulations at 40 CFR Part 82, Subpart G. A complete chronology of SNAP decisions and the appropriate **Federal Register** citations may be found at EPA's Ozone Depletion Web site at <http://www.epa.gov/ozone/snap/chron.html>. For a complete listing of the Agency's decisions on acceptable and unacceptable substitutes, go to <http://www.epa.gov/ozone/snap/lists/index.html>.

II. Listing Decisions: Fire Suppression and Explosion Protection – Total Flooding

In this final rule, EPA is issuing its decision on the acceptability of the following substitutes in the fire suppression and explosion protection sector: Gelled Halocarbon/Dry Chemical Suspension with sodium bicarbonate additive (Envirogel with sodium bicarbonate additive), Powdered Aerosol D (Aero-K[®], Stat-X[®]), Powdered Aerosol E (FirePro[®]), and Phosphorous Tribromide (PBr₃).

The Agency evaluated the criteria set forth at 40 CFR 82.180(a)(7) in determining the acceptability of the above substitutes for halon 1301 total flooding fire suppression systems. The Agency has determined that the Clean Air Act does not authorize EPA to regulate for global climate change purposes (Fabricant, 2003). The Agency has not yet concluded how this determination would affect its consideration of the global warming potential of substitutes under the SNAP program. Regardless, for the substitutes considered here, the global warming potential of the alternatives was not a determinative factor in EPA's acceptability determination. The GWP for these substitutes is well below that of previously approved substitutes in this sector.

The section below presents a detailed discussion of the four fire suppression and explosion protection substitute listing determinations that are finalized in today's direct final rule. Tables summarizing these listing decisions are at the end of this document. The statements

provided in the “Further Information” section of these tables provide additional information, but are not legally binding under section 612 of the Clean Air Act. In addition, the “Further Information” may not be a comprehensive list of other legal obligations you may need to meet when using the substitute. Although you are not required to follow recommendations in the “Further Information” column of the tables to use a substitute, EPA strongly encourages you to apply the information when using these substitutes. In many instances, the information simply refers to standard operating practices in existing industry and/or building-code standards. Thus, many of these statements, if adopted, would not require significant changes to existing operating practices.

A. Gelled Halocarbon/Dry Chemical Suspension with sodium bicarbonate additive

(Envirogel with Sodium Bicarbonate additive) – Acceptable Subject to Use Conditions

Gelled Halocarbon/Dry Chemical Suspension with sodium bicarbonate additive (Envirogel with sodium bicarbonate additive) is acceptable, subject to use conditions, as a halon 1301 substitute for total flooding uses in occupied areas. Envirogel (Gelled Halocarbon/Dry Chemical Suspension) is a blend of any of several hydrofluorocarbons (HFCs) with an additive. The HFCs used in the Envirogel agent (HFC-125, HFC-227ea, or HFC-236fa) have previously been approved as total flooding and streaming agents under EPA’s SNAP program. The use condition requires that use of whichever HFC (HFC-125, HFC-227ea, or HFC-236fa) is employed in the Envirogel with sodium bicarbonate formulation must be in accordance with all requirements for acceptability (i.e., narrowed use limits) of that HFC under EPA’s SNAP program. In addition, the use of HFCs employed in this agent should be in accordance with the latest version of the National Fire Protection Association (NFPA) 2001 Standard on Clean Agent Fire Extinguishing Systems. The use of aerosol extinguishing agents such as Envirogel with

sodium bicarbonate should be in accordance with the latest version of NFPA 2010 Standard on Aerosol Extinguishing Systems.

EPA previously listed Envirogel with the ammonium polyphosphate additive as acceptable for use as a substitute for halon 1301 in total flooding applications in both occupied and unoccupied areas (67 FR 4195, January 29, 2002). In the same rule, use of Envirogel with any additive other than ammonium polyphosphate was restricted to normally unoccupied areas. We had no information on the toxicity of Envirogel in occupied areas with any additive other than ammonium polyphosphate. Subsequently, the submitter requested SNAP review of Envirogel with sodium bicarbonate for use in occupied areas. We evaluated this agent for use in occupied areas and have determined that it is acceptable for such use, subject to use conditions.

EPA is providing additional information regarding use of Envirogel with sodium bicarbonate additive. These are as follows and further discussed below:

- (1) Sodium bicarbonate release in all settings should be targeted so that increased pH level would not adversely affect exposed individuals.
- (2) Users should provide special training to individuals required to be in environments protected by Envirogel with sodium bicarbonate additive extinguishing systems.
- (3) Each extinguisher should be clearly labeled with the potential hazards from use and safe handling procedures.

Targeting release of sodium bicarbonate to prevent increased blood pH

The addition of sodium bicarbonate in the mixture is to minimize the formation of toxic hydrofluoric acid (HF) formed by the decomposition of HFCs during a fire. Sodium bicarbonate, while low in toxicity, also has the ability to affect blood pH level; therefore, its release in all settings should be targeted so that increased blood pH level would not adversely affect those exposed. Sample calculations and assumptions for respirable and released sodium

bicarbonate for varied enclosure sizes are included in the risk screen conducted for this substitute and are available in the electronic docket number EPA-HQ-OAR-2005-0087 for this rule. The effects from exposure to Envirogel with sodium bicarbonate additive are expected to be negligible at the charge sizes and concentrations provided by the manufacturer. This is because of the body's compensatory mechanisms that restore the pH to normal range. EPA recommends the following:

- Avoid or minimize exposure to this fire suppressant in a room with an internal volume of 300 ft³.
- Give exposed individuals an electrolyte solution to drink afterwards to restore the pH within the appropriate range.
- To reduce occupational exposure to sodium bicarbonate during the manufacturing or filling of extinguishers, workers should handle the sodium bicarbonate in a hood and follow good manufacturing practices if there is a risk of dispersing the dust.
- To protect the skin and eyes, workers should wear safety goggles and gloves.
- In the case of an accidental spill, the area should be well-ventilated, and workers should wear their protective equipment while wet-vacuuming the sodium bicarbonate.

Training and labeling

To protect personnel who may be present in areas where Envirogel with sodium bicarbonate additive is discharged, EPA recommends that users should provide special training, including the hazards associated with use of the HFC agent and sodium bicarbonate and proper handling procedures, for individuals required to be in spaces protected by these systems. Extinguisher bottles should be clearly labeled with the potential hazards associated with the use

of the specified HFC agent and sodium bicarbonate, as well as handling procedures to reduce risk resulting from these hazards.

Additional information

EPA is providing additional information regarding use of Envirogel with sodium bicarbonate additive. Use of Envirogel with sodium bicarbonate additive should conform to relevant Occupational Safety and Health Administration (OSHA) requirements, including 29 CFR 1910, Subpart L, Sections 1910.160 and 1910.162. Per OSHA requirements, protective gear (self-contained breathing apparatus) should be available in the event that personnel reenter the area. Discharge testing should be strictly limited to that which is essential to meet safety or performance requirements. The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed.

Updated tables of acceptability listings

Under the SNAP program, Envirogel with the additive ammonium polyphosphate is listed as an acceptable substitute as a total flooding agent. See 67 F.R. 4185, 4195-96. Prior to this rule becoming final, Envirogel with any additive other than ammonium polyphosphate was listed in Appendix J to part 82, subpart G as acceptable subject to narrowed use limits with the condition that it only be used in normally unoccupied areas. Id. Because EPA is finding Envirogel with the additive sodium bicarbonate acceptable subject to narrowed use conditions in normally occupied spaces, we are removing the listing of Envirogel from existing Appendix J and we are addressing its use in new Appendices O and P. Appendix O addresses the decision in this rule that Envirogel with the additive sodium bicarbonate is acceptable subject to use conditions in both normally unoccupied and occupied areas. Appendix P reflects EPA's prior decision that Envirogel with an additive other than ammonium polyphosphate is acceptable for use only in normally unoccupied areas but modifies it to reflect the decision in this rule that

Envirogel with the additive sodium bicarbonate may also now be used in occupied areas. Today's action does not modify EPA's prior decision that Envirogel with the additive ammonium polyphosphate is acceptable for use as a total flooding agent. The removal of Envirogel from Appendix J leaves the agent Halotron II, under the generic name HFC Blend B, as the only agent in Appendix J that is acceptable subject to narrowed use limits.

Use of Envirogel with sodium bicarbonate additive in occupied spaces will be less harmful to the atmosphere than the continued use of halon 1301. Additionally, the risk to the general population is expected to be below levels of concern. Thus, we find that Envirogel with sodium bicarbonate additive is acceptable subject to use conditions because in the end uses listed, it does not pose a greater overall risk to human health and the environment than other acceptable alternatives.

B. Powdered Aerosol D (Aero-K[®], Stat-X[®]) – Acceptable Subject to Use Conditions

Powdered Aerosol D (Aero-K[®], Stat-X[®]) is acceptable, subject to use conditions, as a halon 1301 substitute for total flooding uses. As requested by the submitter, the use conditions require that Powdered Aerosol D be used only in areas that are not normally occupied. In the “Further Information” column of the tables summarizing today’s listing decisions and found at the end of this document, we also provide that use of this agent should be in accordance with the safety guidelines in the latest edition of the NFPA 2010 Standard for Aerosol Extinguishing Systems.

Powdered Aerosol D is a pyrotechnic particulate aerosol and explosion suppressant that is supplied to users as a solid housed in a double-walled hermetically-sealed steel container. When the unit is triggered by heat (300°C), the product is pyrotechnically activated to produce gases and aerosol particles from a mixture of chemicals. This pyrotechnic composition passes through

a bed of catalytically active substrate that cools, oxidizes, and filters the particulates of the mixture.

EPA has reviewed the potential environmental impacts of this substitute and has concluded that Powdered Aerosol D does not pose greater overall risk to human health and the environment than other acceptable substitutes. According to the submitter, the active ingredients for this technology are solids both before and after use; thus, the ozone depletion potential (ODP) and the atmospheric lifetime (ALT) are both zero. The concentrations of the gaseous post-activation products are not expected to result in significant adverse atmospheric impacts. Thus, we find that Powdered Aerosol D is acceptable, subject to use conditions, because it does not pose a greater overall risk to human health and the environment in the end use listed compared to other acceptable substitutes as long as the use conditions are observed. EPA's review of environmental and human health impacts of this agent is contained in the public docket for this rulemaking.

EPA is providing additional information regarding use of Powdered Aerosol D for total flooding uses in unoccupied spaces. EPA evaluated occupational exposure, exposure at end use, and general population exposure to ensure that the use of Powdered Aerosol D did not pose unacceptable risks to workers or the general public. In the "Further Information" column of the tables summarizing today's listing decisions, EPA recommends the following for establishments manufacturing Powdered Aerosol D and filling containers to be used in total flooding applications:

- Workers should wear safety goggles or shields and appropriate protective equipment (e.g., chemical suits, gloves, masks, particulate respirators using NIOSH type N95 or better filters).

- A local exhaust system should be installed and operated to provide adequate ventilation to reduce airborne exposure of Powdered Aerosol D constituents.
- An eye wash fountain and quick drench facility should be close to the production area;
- Training for safe handling procedures should be provided to all employees that would be likely to handle the containers of the agent or extinguishing units filled with the agent.
- Workers should adhere to appropriate occupational safety guidelines.

Upon activation of the Powdered Aerosol D system, several post-activation products are expected to form. Workers entering the protected space after activation should wear the appropriate protective equipment (e.g., gloves, goggles, and a respirator with fine dust rating/capability). Workers responsible for clean up of an inadvertent release of Powdered Aerosol D should wear chemical suits and self-contained breathing apparatus during the cleanup and should not come into contact with post-discharge solids. The manufacturer should provide guidance upon installation of the system regarding the appropriate timeframe after which workers may re-enter the area for disposal to allow the maximum settling of all the particulates. The contents removed from the space should be disposed of according to good industrial hygiene practices, and equipment should be thoroughly decontaminated after use.

EPA's review of environmental and human health impacts of this agent is contained in the public docket for this rulemaking. We find that Powdered Aerosol D is acceptable subject to use conditions (for use only in normally unoccupied areas) because it does not pose a greater overall risk to public health and the environment than other acceptable substitutes in the end use and application listed above.

C. Powdered Aerosol E (FirePro[®]) – Acceptable Subject to Use Conditions

Powdered Aerosol E (FirePro[®]) is acceptable, subject to use conditions, as a halon 1301 substitute for total flooding agent uses. As requested by the submitter, the use conditions require that Powdered Aerosol E be used only in normally unoccupied areas. In the “Further Information” column of the tables summarizing today’s listing decisions and found at the end of this document, we also provide that use of this agent should be in accordance with the safety guidelines in the latest edition of the NFPA 2010 Standard for Aerosol Extinguishing Systems.

Powdered Aerosol E is generated in an automated manufacturing process during which the chemicals, in powder form, are mixed and then supplied to end users as a solid contained within a fire extinguisher. In the presence of heat, the solid converts to an aerosol consisting mainly of potassium salts.

EPA has reviewed the potential environmental impacts of this substitute and has concluded that Powdered Aerosol E does not pose a greater overall risk to human health or the environment than other acceptable substitutes. According to the submitter, the active ingredients for this technology are solids both before and after use; thus, the ODP and the ALT are both zero. The concentrations of the gaseous post-activation products are not expected to result in significant adverse atmospheric impacts. Thus, we find that FirePro[®] is acceptable, subject to use conditions, because it does not pose a greater overall risk to human health and the environment in the end use listed compared to other acceptable substitutes. EPA’s review of environmental and human health impacts of this agent is contained in the public docket for this rulemaking.

EPA is providing additional information regarding use of Powdered Aerosol E for total flooding uses in unoccupied spaces. EPA evaluated occupational exposure, exposure at end use, and general population exposure to ensure that the use of Powdered Aerosol E did not pose

unacceptable risks to workers or the general public. In the “Further Information” columns of the tables summarizing today’s listing decisions, EPA recommends the following for establishments manufacturing FirePro[®] and filling containers to be used in total flooding applications:

- The mixing room should be equipped with a ventilation system.
- Workers should wear gloves and breathing apparatus.
- Appropriate protective clothing (e.g., goggles, particulate removing respirators, and gloves) should be worn during the manufacture, clean up, and disposal of this product.
- Appropriate protective clothing (e.g., goggles, particulate removing respirators, and gloves) should be worn or on site during the installation and maintenance of the product.
- Training for safe handling procedures should be provided to all employees that would be likely to handle the containers of the agent or extinguishing units filled with the agent.

Workers should adhere to appropriate occupational safety guidelines. Upon activation of the FirePro[®] system, the levels of respirable dust will range from 13.7 to 32.9 g/m³. Therefore, if accidentally activated in the presence of workers, the level of respirable particles in the air will exceed OSHA’s limit of 5 mg/m³ of respirable particles and will therefore be considered a nuisance dust. In addition, bromine and chlorine could be present at levels above the Short Term Exposure Limits (STEL) designated by the American Conference of Government Industrial Hygienists (ACGIH). Because the respirable dust level will be exceeded and the STEL of chlorine and bromine could be exceeded, Powdered Aerosol E is limited to use in normally unoccupied spaces. Because installation and maintenance personnel could be exposed when the

system is activated, EPA recommends that all personnel wear goggles, gloves, and particulate removing respirators while performing installations and/or maintenance activities.

The manufacturer should provide guidance upon installation of the system regarding the appropriate timeframe after which workers may re-enter the area for disposal to allow the maximum settling of all the particulates. Clean-up operations are likely to result in re-circulation of potentially toxic nuisance dust particles. Workers entering the protected space after activation should wear the appropriate protective equipment (e.g., gloves, goggles, and a respirator with fine dust rating/capability). Workers responsible for clean up of an inadvertent release of Powdered Aerosol E should wear rubber gloves, goggles, and a particulate removing respirator. The contents removed from the space should be disposed of according to good industrial hygiene practices, and equipment should be thoroughly decontaminated after use.

EPA's review of environmental and human health impacts of this agent is contained in the public docket for this rulemaking. We find that Powdered Aerosol E is acceptable subject to use conditions (for use only in normally unoccupied areas) because it does not pose a greater overall risk to human health and the environment than other acceptable substitutes in the end use and application listed above.

D. Phosphorous Tribromide (PBr₃) – Acceptable Subject to Use Conditions

Phosphorous tribromide (PBr₃) is acceptable, subject to use conditions, as a halon 1301 substitute for total flooding uses. As requested by the submitter, the use conditions require that PBr₃ be used only in aircraft engine nacelles. These areas are unoccupiable, meaning that personnel cannot enter the space due to the physical or dimensional constraints of the protected space. PBr₃ is estimated to have negligibly small ODP and an ALT estimated to be less than a few seconds. The use of PBr₃ proposed for use as a total flooding fire suppression agent to

protect aircraft engine nacelles is not expected to pose a threat to atmospheric integrity or to human health. Today, EPA is listing PBr_3 as acceptable, subject to use conditions, for use as a substitute for halon 1301 for total flooding only in aircraft engine nacelles.

EPA has reviewed the potential environmental impacts of this substitute and has concluded that PBr_3 does not pose a greater overall risk to human health and the environment than other acceptable substitutes. Because the fire suppressant is proposed for use in aircraft engine nacelles, EPA reviewed the potential contribution to ozone depletion from its discharge into the stratosphere. Given the short atmospheric lifetime of PBr_3 because of rapid hydrolysis and the small amount of bromine used in this application, the ODP is expected to be negligibly small (approximately 0.01-0.08, as compared to the ODP of halon 1301 of 12). Therefore, PBr_3 is substantially less harmful to the ozone layer than the continued use of halon 1301. EPA's review of environmental and human health impacts of this agent is contained in the public docket for this rulemaking.

EPA is providing additional information regarding use of PBr_3 for total flooding uses in aircraft engine nacelles considered to be unoccupiable spaces. EPA evaluated occupational exposure, exposure at end use, and general population exposure to ensure that the use of PBr_3 did not pose unacceptable risks to workers or the general public. According to the submitter, workers are not expected to have contact with PBr_3 in the manufacturing setting; however, there is the potential risk of exposure in the event of an accidental spill during manufacturing. EPA modelled a simulated spill in a room assuming the instantaneous and complete hydrolysis of PBr_3 to gaseous HBr and solid H_3PO_3 . The HBr concentrations resulting from a spill during manufacturing are not considered an immediate, significant risk to workers' health. A spill in the room modelled would potentially produce enough solid H_3PO_3 to exceed the ACGIH limit for nuisance dust of 10 mg/m^3 . However, because the nuisance dust limit is based on an 8-hour

time-weighted average for continuing, long-term exposure, and the spill would be an isolated event, the small exceedance is not considered to be of health concern. Since the space considered for use of the agent is an aircraft engine nacelle, which is an unoccupiable space, no end use exposure will result from the use of PBr₃ in this space.

In the “Further Information” column of the tables summarizing today’s listing decisions, EPA recommends the following for establishments manufacturing, installing, or maintaining the PBr₃ ampoules for aircraft engine nacelles:

- Adequate ventilation should be in place and/or positive pressure self-contained breathing apparatus (SCBA) should be worn.
- All spills should be cleaned up immediately in accordance with good industrial hygiene practices.
- Training for safe handling procedures should be provided to all personnel that would be likely to handle PBr₃ containers or extinguishing units filled with the material.

EPA’s review of environmental and human health impacts of this agent is contained in the public docket for this rulemaking. We find that PBr₃ is acceptable subject to use conditions (for use only in aircraft engine nacelles) because it does not pose a greater overall risk to human health and the environment than other acceptable substitutes in the end use and application listed above.

III. Statutory and Executive Order Reviews

A. *Executive Order 12866*

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the Agency must determine whether this regulatory action is significant and therefore subject to OMB review and

the requirements of the Executive Order. The Order defines significant regulatory action as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of \$100 million or more, or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, OMB notified EPA on August 23, 2004, that it considers this a “non-significant regulatory action” within the meaning of the Executive Order and, therefore, did not require EPA to submit this action to OMB for review.

B. *Paperwork Reduction Act*

EPA has determined that this final rule contains no information requirements subject to the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*, that are not already approved by the OMB. OMB has reviewed and approved two Information Collection Requests (ICRs) by EPA which are described in the March 18, 1994 rulemaking (59 FR 13044, at 13121, 13146-13147) and in the October 16, 1996 rulemaking (61 FR 54030, at 54038-54039). These ICRs included five types of respondent reporting and record-keeping activities pursuant to SNAP regulations: submission of a SNAP petition, filing a SNAP/TSCA Addendum, notification for test marketing activity, record-keeping for substitutes acceptable subject to narrowed use limits, and record-keeping for small volume uses. The OMB Control Numbers are 2060-0226 and 2060-0350.

Copies of the ICR document(s) may be obtained from Susan Auby, by mail at the Office of Environmental Information, Collection Strategies Division; U.S. Environmental Protection Agency (2822T); 1200 Pennsylvania Ave., NW, Washington, DC 20460, by email at auby.susan@epa.gov, or by calling (202) 566-1672. A copy may also be downloaded off the internet at <http://www.epa.gov/icr>. Include the ICR and/or OMB number in any correspondence.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An Agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15.

C. *Regulatory Flexibility Act (RFA)*

The RFA generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statutes unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

EPA has determined that it is not necessary to prepare a regulatory flexibility analysis in connection with this final rule because this rule will not have a significant economic impact on a substantial number of small entities. For purposes of assessing the impact of today's rule on small entities, small entities are defined as (1) a small business that produces or uses fire suppressants as total flooding and/or streaming agents with 500 or fewer employees or total annual receipts of \$5 million or less; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's final rule on small entities, EPA has concluded that this action will not have a significant economic impact on a substantial number of small entities. This final rule will not impose any requirements on small entities beyond current industry practices. Today's action effectively supports the introduction of four new alternatives to the fire protection extinguishing systems market thus providing additional options for users making the transition away from ozone-depleting halons.

Use of halon 1301 total flooding systems have historically been in specialty fire protection applications including essential electronics, civil aviation, military mobile weapon systems, oil and gas and other process industries, and merchant shipping with smaller segments of use including libraries, museums, and laboratories. The majority of halon 1301 system owners continue to maintain and refurbish existing systems since halon 1301 supplies continue to be available in the U.S. Owners of new facilities make up the market for the new alternative agent systems and may also consider employing other available fire protection options including new, improved technology for early warning and smoke detection. Thus, EPA is providing more options to any entity, including small entities, by finding these substitutes acceptable for use.

The use restrictions imposed on the substitutes in today's rule are consistent with the applications suggested by the submitters. Thus far, these alternatives have not been sold or used in the end uses not found acceptable under today's rule. Until a manufacturer or other party requests a SNAP review for such end uses, these products may not be sold for such end uses. Therefore, we conclude that the rule does not impose a new cost on businesses.

Although this final rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless has tried to reduce the impact of this rule on small entities. By introducing new substitutes, today's rule gives additional flexibility to small entities that are concerned with fire suppression. EPA also has worked closely together with the National Fire Protection Association, which conducts regular outreach with, and involves small state, local, and tribal governments in developing and implementing relevant fire protection standards and codes.

D. *Unfunded Mandates Reform Act*

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector.

Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent

with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Section 204 of the UMRA requires the Agency to develop a process to allow elected state, local and tribal government officials to provide input in the development of any proposal containing a significant Federal intergovernmental mandate.

Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Today's rule contains no Federal mandates (under the regulatory provisions of Title II of the UMRA) for State, local, or tribal governments or the private sector. Because this rule imposes no enforceable duty on any State, local or tribal government it is not subject to the requirements of sections 202 and 205 of the UMRA. EPA has also determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments; therefore, EPA is not required to develop a plan with regard to small governments under section 203. Finally, because this rule does not contain a significant intergovernmental mandate, the Agency is not required to develop a process to obtain input from elected state, local, and tribal officials under section 204.

E. *Executive Order 13132 (Federalism)*

Executive Order 13132, entitled “Federalism” (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.” “Policies that have federalism implications” is defined in the Executive Order to include regulations that have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.”

This direct final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This direct final rule will provide additional options for fire protection subject to safety guidelines in industry standards. These standards are typically already required by state or local fire codes, and this rule does not require state, local, or tribal governments to change their regulations. Thus, Executive Order 13132 does not apply to this rule.

F. *Executive Order 13175: Consultation and Coordination with Indian Tribal Governments*

Executive Order 13175, entitled “Consultation and Coordination with Indian Tribal Governments” (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure “meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.” This direct final rule does not have tribal implications, as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes,

as specified in Executive Order 13175. This direct final rule will provide additional options for fire protection subject to safety guidelines in industry standards. These standards are typically already required by state or local fire codes, and this rule does not require tribal governments to change their regulations. Thus, Executive Order 13175 does not apply to this rule.

G. *Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks*

Executive Order 13045: "Protection of Children from Environmental Health Risks and Safety Risks" (62 F.R. 19885, April 23, 1997) applies to any rule that: (1) is determined to be "economically significant" as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This final rule is not economically significant as defined in Executive Order 12866, and the Agency does not have reason to believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. The acceptability listings in this final rule primarily apply to the workplace, and thus, do not put children at risk disproportionately. This rule is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866 and because the Agency does not have reason to believe the environmental health or safety risks addressed by this action present a disproportionate risk to children.

H. *Executive Order 13211 (Energy Effects)*

This rule is not a “significant energy action” as defined in Executive Order 13211, “Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use” (66 FR 28355 (May 22, 2001)) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The rule allows wider use of substitutes, providing greater flexibility for industry related to choices of alternative fire suppression systems to support the transition away from ozone-depleting substances, but little if any impact related to energy. Thus, we have concluded that this rule is not likely to have any adverse energy effects.

I. *National Technology Transfer and Advancement Act*

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law No. 104-113, Section 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This rulemaking does not involve technical standards. EPA defers to existing National Fire Protection Association (NFPA) voluntary consensus standards and Occupational Safety and Health Administration (OSHA) regulations that relate to the safe use of halon substitutes reviewed under SNAP. EPA refers users to the latest edition of NFPA 2001 Standard on Clean Agent Fire Extinguishing Systems which provides for exposure guidelines and safe use of halocarbon and inert gas agents used to extinguish fires. EPA also refers to the latest edition of NFPA 2010 Standard on Aerosol Extinguishing Systems which provides for safe use of aerosol extinguishing agents and technologies. Copies of these standards may be obtained by calling the

NFPA's telephone number for ordering publications at 1-800-344-3555. The NFPA 2001 and 2010 standards meet the objectives of the rule by setting scientifically-based guidelines for safe exposure to halocarbon and inert gas agents and aerosol extinguishing agents, respectively. In addition, EPA has worked in consultation with OSHA to encourage development of technical standards to be adopted by voluntary consensus standards bodies.

J. *Congressional Review Act*

The Congressional Review Act (CRA), 5 U.S.C. 801 et seq., as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2). This rule will be effective on **[Insert date 60 days from FR publication]**, unless we receive adverse comment or a request for a public hearing prior to **[Insert date 30 days from FR publication]**.

List of Subjects in 40 CFR Part 82

Environmental protection, Administrative practice and procedure, Air pollution control, Reporting and recordkeeping requirements.

Direct Final Rule

Protection of Stratospheric Ozone: Listing of Substitutes for Ozone-Depleting Substances—Fire Suppression and Explosion Protection

Page 32 of 39

Dated: _____

Stephen L. Johnson,

Administrator.

For the reasons set out in the preamble, 40 CFR part 82 is amended as follows:

PART 82 - PROTECTION OF STRATOSPHERIC OZONE

1. The authority citation for Part 82 continues to read as follows:

Authority: 42 U.S.C. 7414, 7601, 7671 - 7671q.

Subpart G - Significant New Alternatives Policy Program

2. Appendix J to Subpart G of part 82 is amended by revising the table entitled “Fire Suppression and Explosion Protection--Total Flooding Substitutes-- Acceptable Subject to Narrowed Use Limits” to read as follows:

Appendix J to Subpart G of Part 82- Substitutes listed in the January 29, 2002 Final Rule, effective April 1, 2002.

FIRE SUPPRESSION AND EXPLOSION PROTECTION SECTOR--TOTAL FLOODING SUBSTITUTES--ACCEPTABLE SUBJECT TO NARROWED USE LIMITS

End-use	Substitute	Decision	Conditions	Further Information
Total flooding	HFC Blend B (Halotron II®)	Acceptable subject to narrowed use limits.	Acceptable in areas that are not normally occupied only.	See additional comments 1, 2, 3, 4, 5.

Additional comments:

1- Should conform to relevant OSHA requirements, including 29 CFR 1910, Subpart L, Sections 1910.160 and 1910.162.

2- Per OSHA requirements, protective gear (SCBA) should be available in the event personnel should reenter the area.

3- Discharge testing should be strictly limited to that which is essential to meet safety or performance requirements.

4- The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed.

5- EPA has no intention of duplicating or displacing OSHA coverage related to the use of personal protective equipment (e.g., respiratory protection), fire protection, hazard communication, worker training or any other occupational safety and health standard with respect to halon substitutes.

3. Subpart G of part 82 is amended by adding Appendix O to read as follows:

Appendix O to Subpart G of Part 82- Substitutes listed in the [Insert FR publication date] Final Rule, effective [Insert date 60 days after FR publication date].

FIRE SUPPRESSION AND EXPLOSION PROTECTION SECTOR--TOTAL

FLOODING SUBSTITUTES--ACCEPTABLE SUBJECT TO USE CONDITIONS

End-use	Substitute	Decision	Conditions	Further Information
Total flooding	Gelled Halocarbon/ Dry Chemical Suspension (Envirogel) with sodium bicarbonate additive	Acceptable subject to use conditions.	Use of whichever hydrofluorocarbon gas (HFC-125, HFC-227ea, or HFC-236fa) is employed in the formulation must be in accordance with all requirements for acceptability (i.e., narrowed use limits) of that HFC under EPA's SNAP program.	<p>Use of this agent should be in accordance with the safety guidelines in the latest edition of the NFPA 2001 Standard for Clean Agent Fire Extinguishing Systems, for whichever hydrofluorocarbon gas is employed, and the latest edition of the NFPA 2010 standard for Aerosol Extinguishing Systems.</p> <p>Sodium bicarbonate release in all settings should be targeted so that increased blood pH level would not adversely affect exposed individuals.</p> <p>Users should provide special training, including the potential hazards associated with the use of the HFC agent and sodium bicarbonate, to individuals required to be in environments protected by Envirogel with sodium bicarbonate additive extinguishing systems.</p> <p>Each extinguisher should be clearly labeled with the potential hazards from use and safe handling procedures.</p> <p>See additional comments 1, 2, 3, 4, 5</p>

Total flooding	Powdered Aerosol D (Aero-K [®] , Stat-X [®])	Acceptable subject to use conditions.	For use only in normally unoccupied areas.	<p>Use of this agent should be in accordance with the safety guidelines in the latest edition of the NFPA 2010 standard for Aerosol Extinguishing Systems.</p> <p>For establishments manufacturing the agent or filling, installing, or servicing containers or systems to be used in total flooding applications, EPA recommends the following:</p> <ul style="list-style-type: none"> - adequate ventilation should be in place to reduce airborne exposure to constituents of agent; - an eye wash fountain and quick drench facility should be close to the production area; - training for safe handling procedures should be provided to all employees that would be likely to handle containers of the agent or extinguishing units filled with the agent; - workers responsible for clean up should allow for maximum settling of all particulates before reentering area and wear appropriate protective equipment; and - all spills should be cleaned up immediately in accordance with good industrial hygiene practices. <p>See additional comments 1, 2, 3, 4, 5.</p>
Total flooding	Powdered Aerosol E (FirePro [®])	Acceptable subject to use conditions.	For use only in normally unoccupied areas.	<p>Use of this agent should be in accordance with the safety guidelines in the latest edition of the NFPA 2010 standard for Aerosol Extinguishing Systems.</p> <p>For establishments manufacturing the agent or filling, installing, or servicing containers or systems to be used in total flooding applications, EPA recommends the following:</p> <ul style="list-style-type: none"> - adequate ventilation should be in place to reduce airborne exposure to constituents of agent; - an eye wash fountain and quick

				<p>drench facility should be close to the production area;</p> <ul style="list-style-type: none"> - training for safe handling procedures should be provided to all employees that would be likely to handle containers of the agent or extinguishing units filled with the agent; - workers responsible for clean up should allow for maximum settling of all particulates before reentering area and wear appropriate protective equipment; and - all spills should be cleaned up immediately in accordance with good industrial hygiene practices. <p>See additional comments 1, 2, 3, 4, 5.</p>
Total flooding	Phosphorous Tribromide (PBr ₃)	Acceptable subject to use conditions.	For use only in aircraft engine nacelles.	<p>For establishments manufacturing the agent or filling, installing, or servicing containers or systems, EPA recommends the following:</p> <ul style="list-style-type: none"> - adequate ventilation should be in place and/or positive pressure, self-contained breathing apparatus (SCBA) should be worn; - training for safe handling procedures should be provided to all employees that would be likely to handle containers of the agent or extinguishing units filled with the agent; and - all spills should be cleaned up immediately in accordance with good industrial hygiene practices. <p>See additional comments 1, 2, 3, 4, 5.</p>

Additional comments:

- 1- Should conform to relevant OSHA requirements, including 29 CFR 1910, Subpart L, Sections 1910.160 and 1910.162.
- 2- Per OSHA requirements, protective gear (SCBA) should be available in the event personnel should reenter the area.
- 3- Discharge testing should be strictly limited to that which is essential to meet safety or performance requirements.

4- The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed.

5- EPA has no intention of duplicating or displacing OSHA coverage related to the use of personal protective equipment (e.g., respiratory protection), fire protection, hazard communication, worker training or any other occupational safety and health standard with respect to halon substitutes.

4. Subpart G of part 82 is amended by adding Appendix P to read as follows:

Appendix **P** to Subpart G of Part 82- Substitutes listed in the [**Insert FR publication date**] Final Rule, effective [**Insert date 60 days after FR publication date**].

**FIRE SUPPRESSION AND EXPLOSION PROTECTION SECTOR--TOTAL
FLOODING AGENTS--ACCEPTABLE SUBJECT TO NARROWED USE LIMITS**

End-use	Substitute	Decision	Conditions	Further Information
Total flooding	Gelled Halocarbon/Dry Chemical Suspension with any agent other than ammonium polyphosphate or sodium bicarbonate additive (Envirogel with sodium bicarbonate additive)	Acceptable subject to narrowed use limits	For use only in normally unoccupied areas.	<p>Use of this agent should be in accordance with the safety guidelines in the latest edition of the NFPA 2001 Standard for Clean Agent Fire Extinguishing Systems, for whichever hydrofluorocarbon gas is employed.</p> <p>Envirogel is listed as a streaming substitute under the generic name Gelled Halocarbon / Dry Chemical Suspension. Envirogel was also previously listed as a total flooding substitute under the same generic name.</p> <p>EPA has found Envirogel with the ammonium polyphosphate additive and Envirogel with the sodium bicarbonate additive to be acceptable as total flooding agents in both occupied and unoccupied areas.</p> <p>See additional comments 1, 2, 3, 4, 5</p>

Additional comments:

- 1- Should conform to relevant OSHA requirements, including 29 CFR 1910, Subpart L, Sections 1910.160 and 1910.162.
- 2- Per OSHA requirements, protective gear (SCBA) should be available in the event personnel should reenter the area.
- 3- Discharge testing should be strictly limited to that which is essential to meet safety or performance requirements.
- 4- The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed.
- 5- EPA has no intention of duplicating or displacing OSHA coverage related to the use of personal protective equipment (e.g., respiratory protection), fire protection, hazard communication, worker training or any other occupational safety and health standard with respect to halon substitutes.

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